REMARKS

Rejection under 35 USC §103(a) in view of Romantier et al. (US '765)

Claims 1, 5-10, 26-29 and 32-35 are rejected as allegedly being obvious in view of Romantier et al. (US 6,168,765). This rejection is respectfully traversed.

US '765 a plate reactor containing a plurality of plates which define reaction zones and a heating zones. A reactant-containing stream is passed through a plurality of channels which are defined by spaced apart plates. The reactant stream contacts a catalyst within this plurality of channels. During its passage, the reactant-containing stream is subjected to indirect heat exchange with exchange fluid which passes through another plurality of channels, also defined by the spaced apart plates. The plates can be corrugated as can be seen in the embodiments illustrated in Figures 2 and 3.

In the arrangement shown in Figure 1, reactant enters through inlet 13, passes into distribution chamber 14, and then passes laterally through the plate reactor via a first set of reaction channels 15 which contain an oxidation catalyst. Manifold 18 collects the reactant from the first set of channels and distributes it into a second set of reaction channels 23 through which, again, the reactant flows laterally.

As the reactant flows laterally through reaction channels 15 and 23, a cooling fluid flows longitudinally through a plurality of heat exchange channels 16, thereby establishing a cross flow relationship. Thus, in general, in Figure 1 the reactant flows laterally from distributors to collectors while the heat exchange fluid flows longitudinally.

In the embodiments in Figures 4-8, both the reactant and heat exchange streams flow laterally. Thus, the lateral sides of the plate reactor are provided with distributors and collectors. See, for example, in Figure 4, collection chamber 49, outlet chamber 51, inlet chamber 53, and collection chamber 50 for the reactant, and distribution sub-channels 62 and collection sub-channels 63 for the cooling fluid.

Comparing the disclosure of US '765 to the claimed invention, US '765 does not suggest a plate reactor which can operate at high pressures. Applicants' claims recite that the reactor has lateral boundary areas which are jacket pieces, and that these jacket pieces, together with the

channels, plates, and collectors, form a pressure-resistant cuboid block, whereby the reactor is capable of operating at process fluid and heat transfer medium pressures of more than 25 bar.

In the rejection it is alleged that it would be obvious to design the reactor of US '765 to be capable of operating at pressures of more than 25 bar in order to meet pressure vessel requirements. However, this assertion does not present any motivation for modifying the reactor. No rationale is presented as to why one of ordinary skill in the art would modify the reactor so as to meet pressure vessel requirements to be capable of operating at pressures above 25 bar.

In accordance with the state of the art, the manufacture of a catalytic reactor as described by US '765 would involve first coating the plates with a catalytic film and then connecting the various components together to form the plate reactor. However, one would not combine these components together by such means as welding or brazing since these operations could damage the catalytic film. Without such positive connection of the components by welding or the like, the reactor would not be expected to operate at pressures of greater than 25 bar. It is noted that US '765, in discussing the passage of heated reactants through a common chamber, indicates the desirability of eliminating the need for providing manifolds and there associated welding. See column 3, lines 33-37.

In addition, it is alleged in the rejection that discloses lateral boundary areas and refers to plate closures. However, as discussed above, the lateral areas of the reactor embodiments disclosed by US '765 are where distributors/collectors are connected, not jacket pieces as recited in applicants ' claims 1 and 32. Thus, US '765 provides no disclosure or suggestion of lateral boundary areas that are jacket pieces, and which form a pressure-resistant cuboid block with channels, plates, and collectors.

In view of the above remarks, it is respectfully submitted that US '765 fails to render obvious applicants' claimed invention. Withdrawal of the rejection under 35 USC §103(a) is respectfully requested.

Rejection under 35 USC §103(a) in view of Romantier et al. and Mulvaney et al.

Claims 3, 4, 25, 30, and 31 are rejected as allegedly being obvious in view of Romantier et al. (US.6,168,765) in combination with Van Dyke et al. (US 5,031,693). This rejection is also

respectfully traversed.

In the rejection, US '693 is relied on for its disclosure of using corrugated perforated plates. However, US '693 does not overcome the deficiencies discussed above with regards to the disclosure of US '765. Thus, there is no motivation presented in the rejection that would lead one of ordinary skill in the art to modify the plate reactor of US '765 so as to employ a pressure-resistant cuboid block formed from jacket pieces, channels, plates, and collectors, to provide a reactor capable of operating at process fluid and heat transfer medium pressures of more than 25 bar.

In view of the above remarks, it is respectfully submitted that US '765, alone or in combination with US '693, fails to render obvious applicants' claimed invention. Withdrawal of the rejection under 35 USC §103(a) is respectfully requested.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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